

OFFICE MEMO

TO: Paul Hutton	DATE: December 3, 2001
FROM: Tara Smith	SUBJECT: Updated Delta Wetlands Preliminary DSM2 Studies

I. Introduction and Summary

The Delta Wetland Delta Simulation Model 2 (DSM2) Simulations (Mierzwa, 2001) were rerun by Michael Mierzwa with the following changes:

1. Only the Dissolved Organic Carbon (DOC) water quality constituent was modeled.
2. The simulations were run using a 1995 level of development. The previous simulations used a historical level of development.
3. The habitat islands' drainage and diversions were modeled. The previous simulations modeled the habitat islands as agricultural islands.
4. The Sacramento and San Joaquin DOC boundary values were adjusted to reflect the relationship between DOC and high winter flows. (Suits, Nov 2001)
5. The hydrodynamic simulations were made using a real tide that includes the spring and neap cycle. The previous simulations used a 19 year repeating tide.
6. The DOC concentrations released from the project islands were modeled in a different way. The 6, 15, and 30 mg/l release qualities that occurred in the original simulations were not modeled again. Instead, the carbon growth module developed by Marvin Jung (Jung, 2001) and implemented into DSM2 (Pandey, 2001) was used to model variable release qualities with two bookend maximum DOC levels.
7. The exports were increased to include the water that is released from the reservoir islands. In the previous simulations, the exports for the base and the Delta Wetlands operation were identical.
8. Water diverted by Contra Costa Water District was separated between the Contra Costa Canal Intake and the Los Vaqueros intake. Contra Costa Water District provided this division of the diversion to DWR. Diversion water was only taken through Contra Costa Canal in the original simulations.
9. The diversion location for Bacon Island was changed from the middle of False River to the intersection of False River and Middle River.
10. Source tracking was done. Results are not presented in this memo.
11. Particle tracking was done for June and July of 1980. Results are not presented in this memo.

These simulations resulted in the following findings that are shown graphically in the following pages:

1. Maximum monthly DOC increased in base case.
2. Maximum monthly DOC for high bookend alternative decreased.
3. Low bookend DOC did exceed the maximum increase in DOC standard at the Los Vaqueros Reservoir intake.

II. DSM2 Input

The following graphs and figures show some of the major inputs to DSM2.

A. Inflows

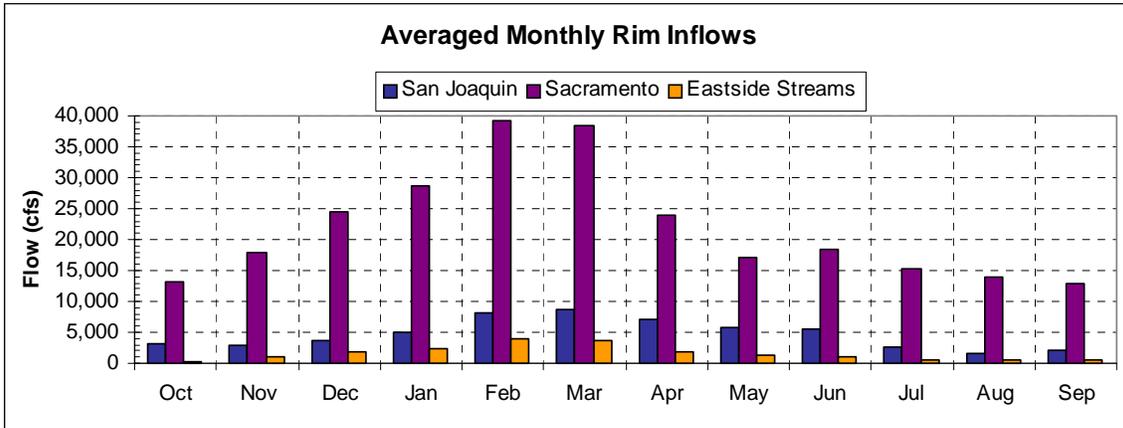


Figure 1

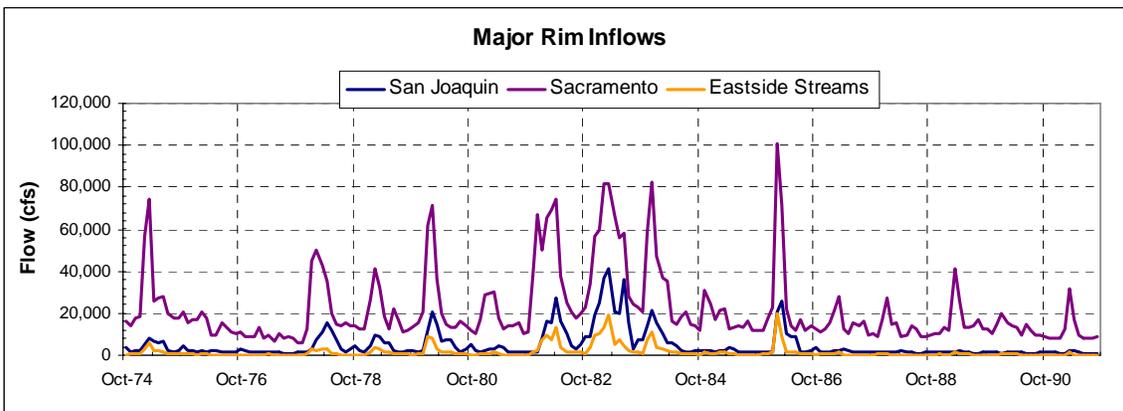


Figure 2

B. DOC Boundary Conditions

1. DOC for Rim Boundaries

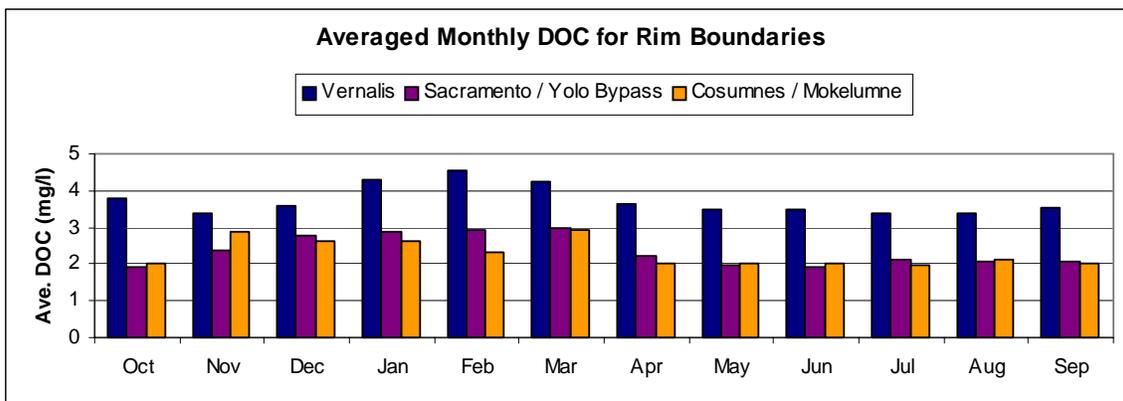


Figure 3

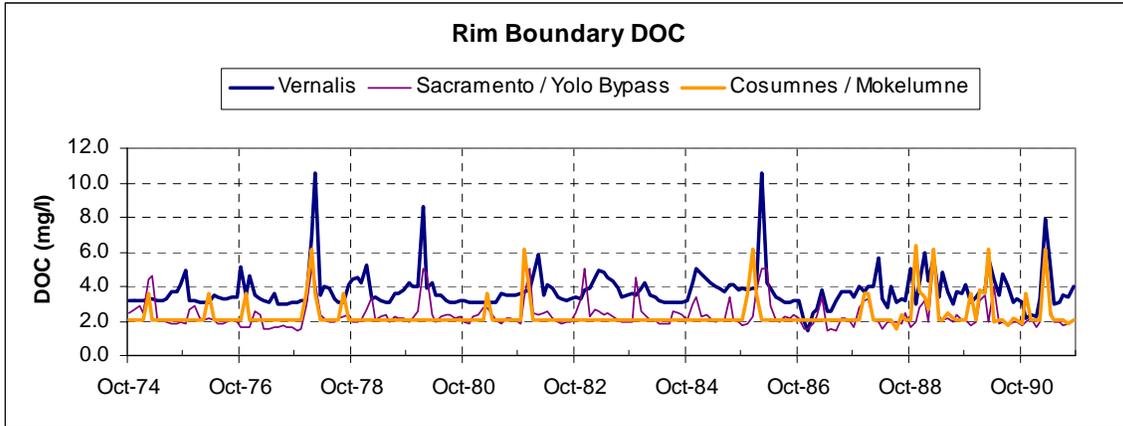


Figure 4

2. Agricultural Release DOC

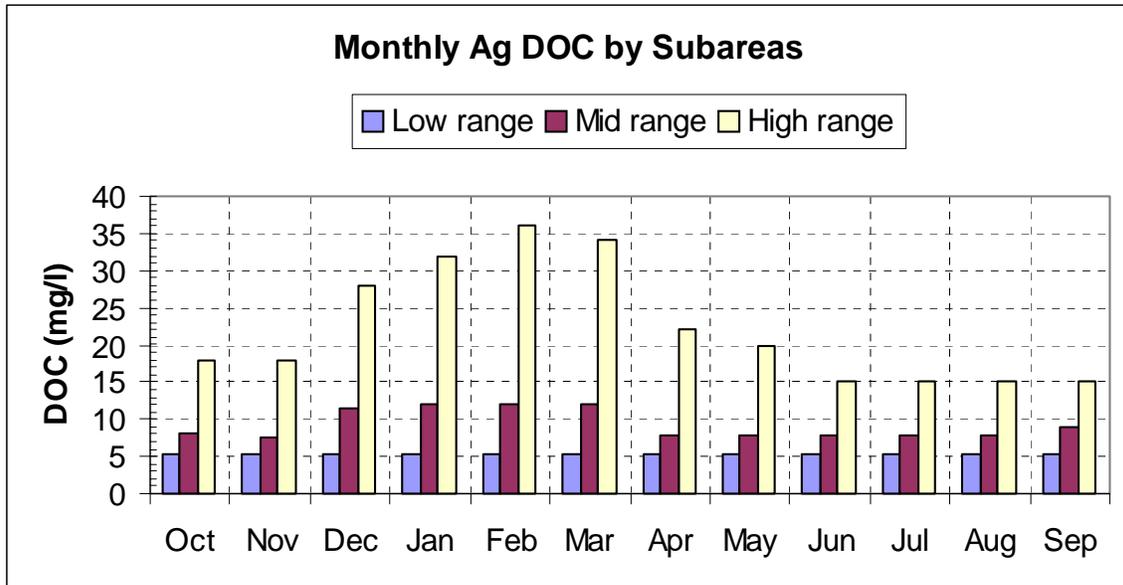


Figure 5

C. Diversions to and Releases from Islands

1. Diversions to Project Islands

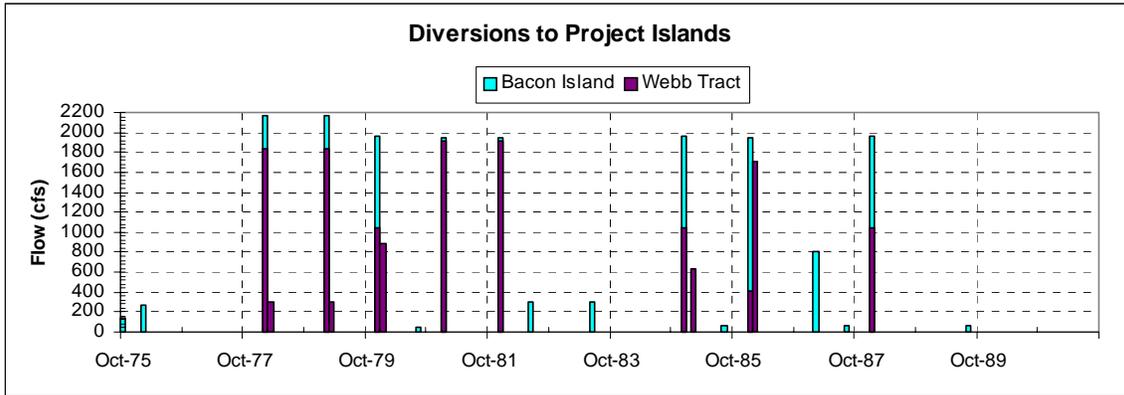


Figure 6

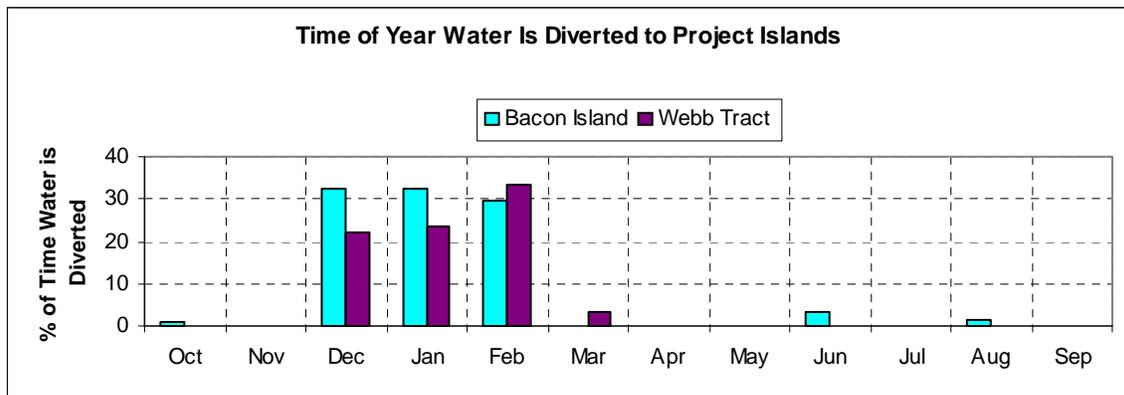


Figure 7

2. Releases from Project Islands

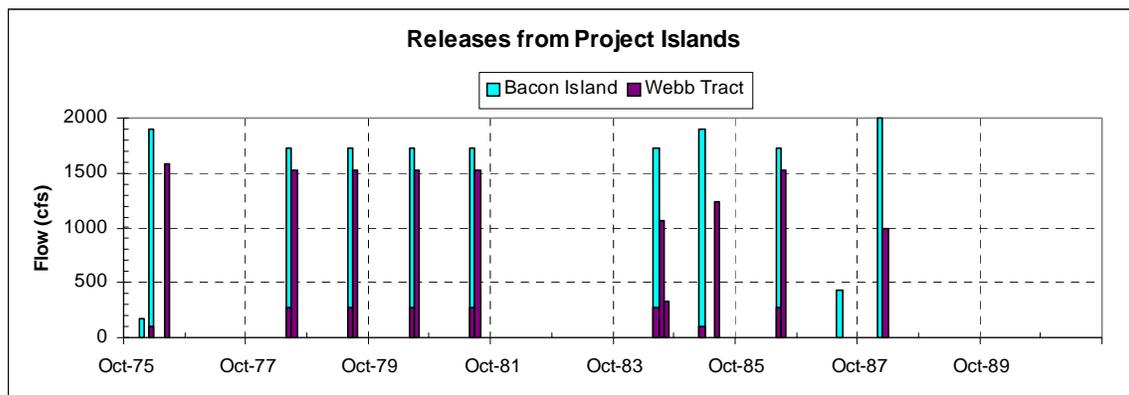


Figure 8

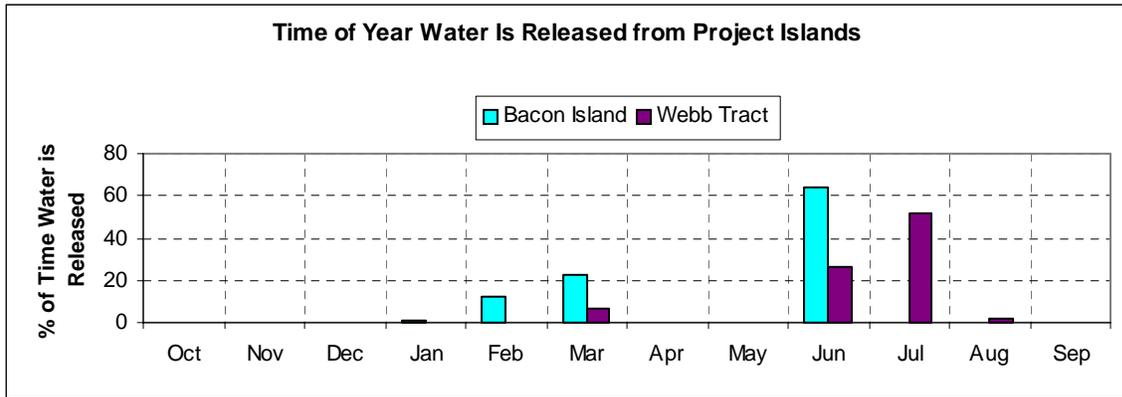


Figure 9

3. Habitat Island Consumptive Use

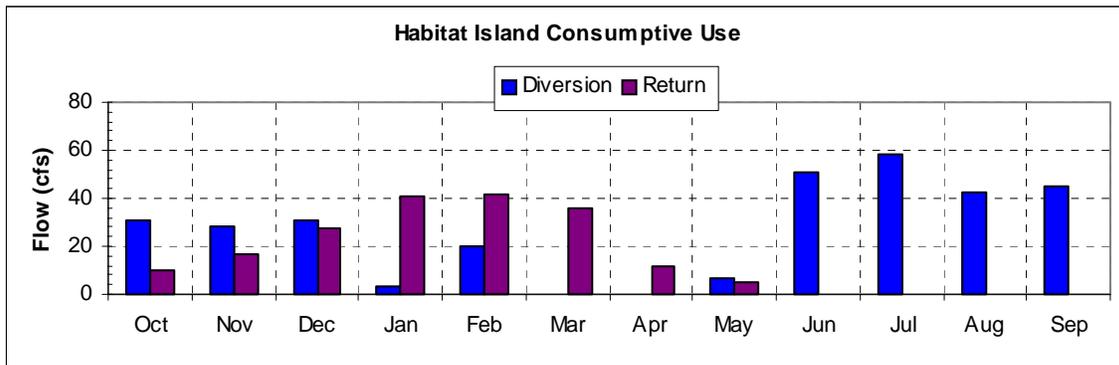


Figure 10

D. Location Maps of Island Diversions and Releases

1. Project Islands

Bacon Island

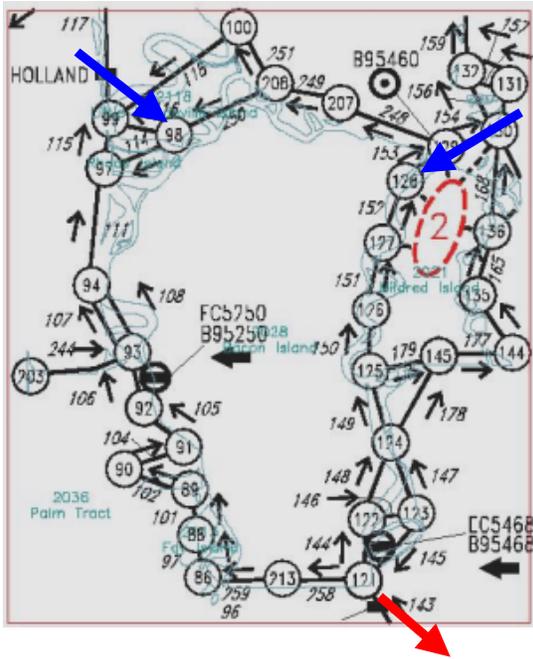


Figure 11

Webb Tract

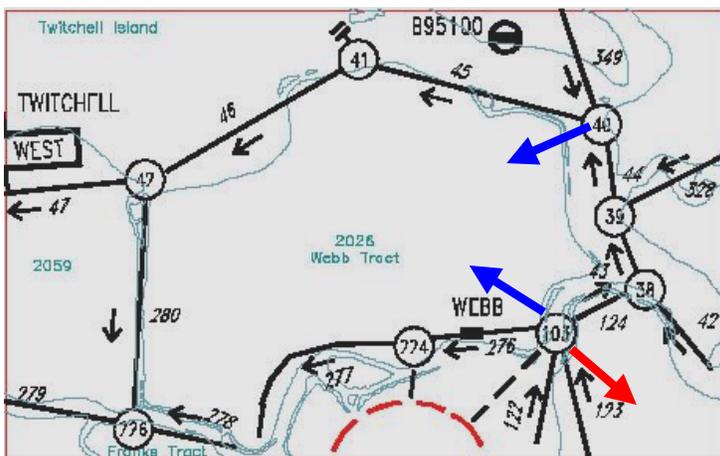


Figure 12

2. Habitat Islands

Bouldin Island

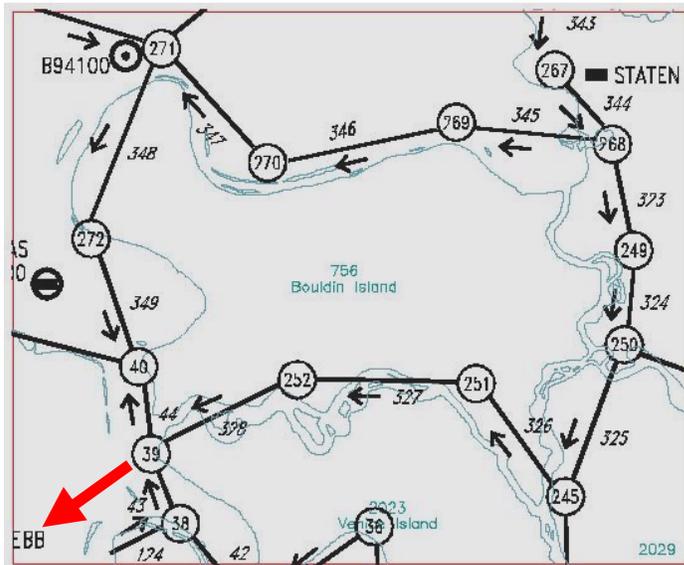


Figure 13

Holland Tract

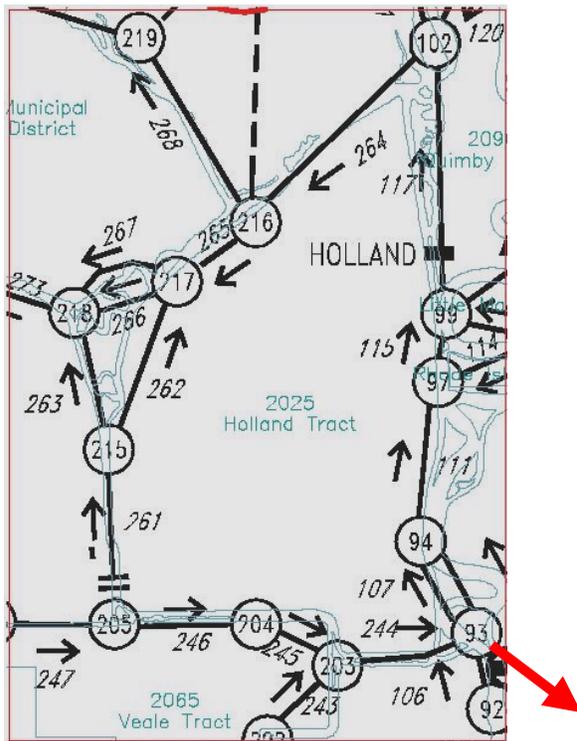


Figure 14

III. DSM2 Results

A. DOC at Old River at Rock Slough

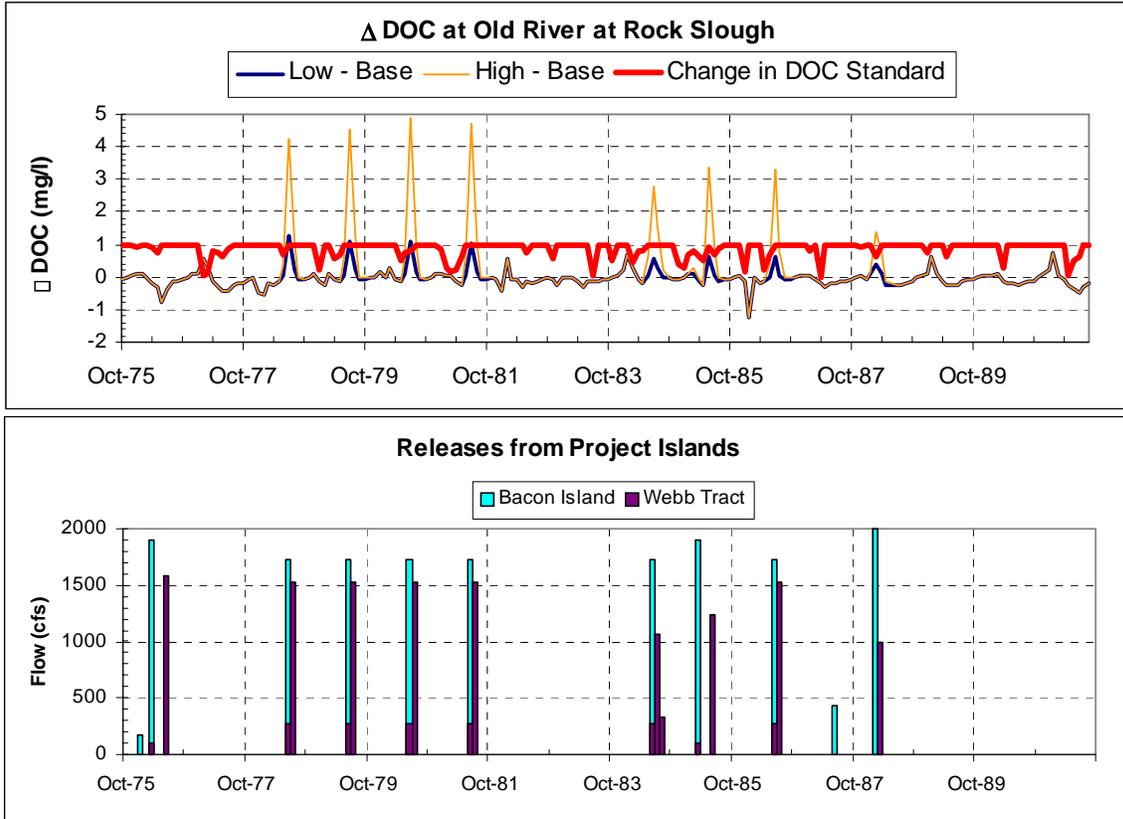


Figure 15

B. DOC at Old River at the SWP Intake

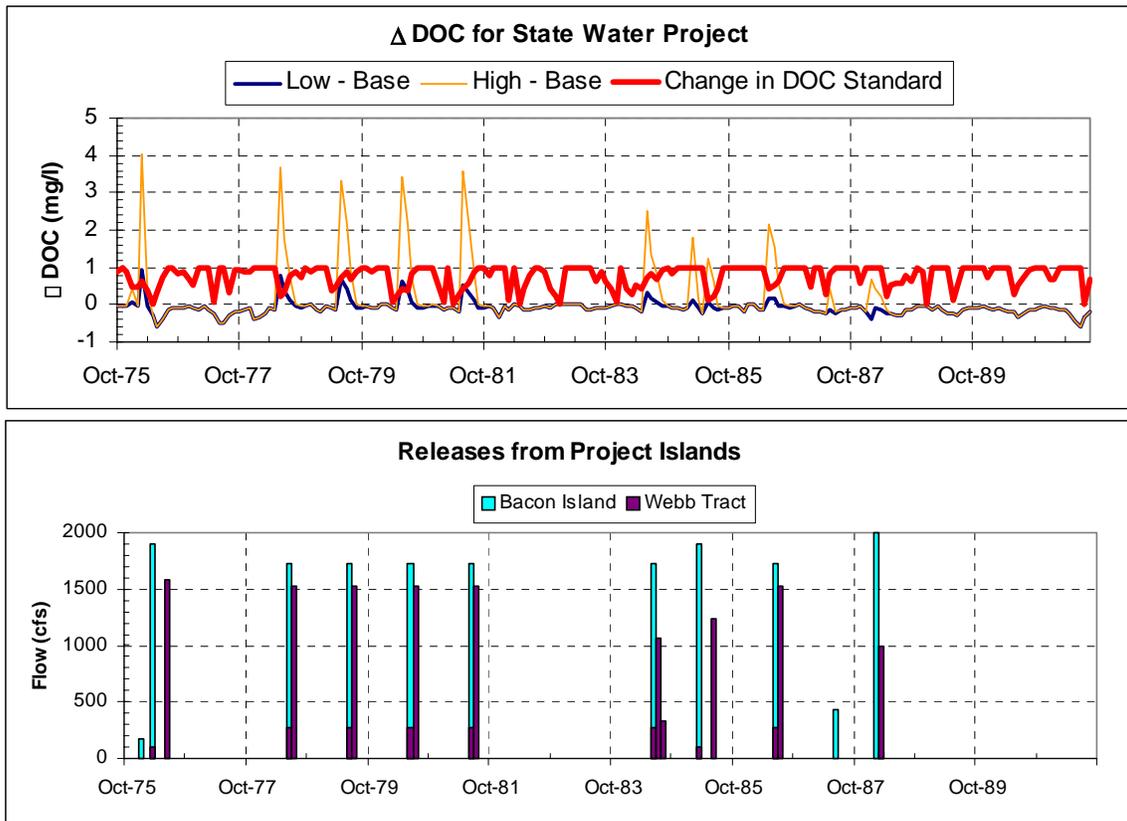


Figure 16

C. DOC at the Los Vaqueros Intake

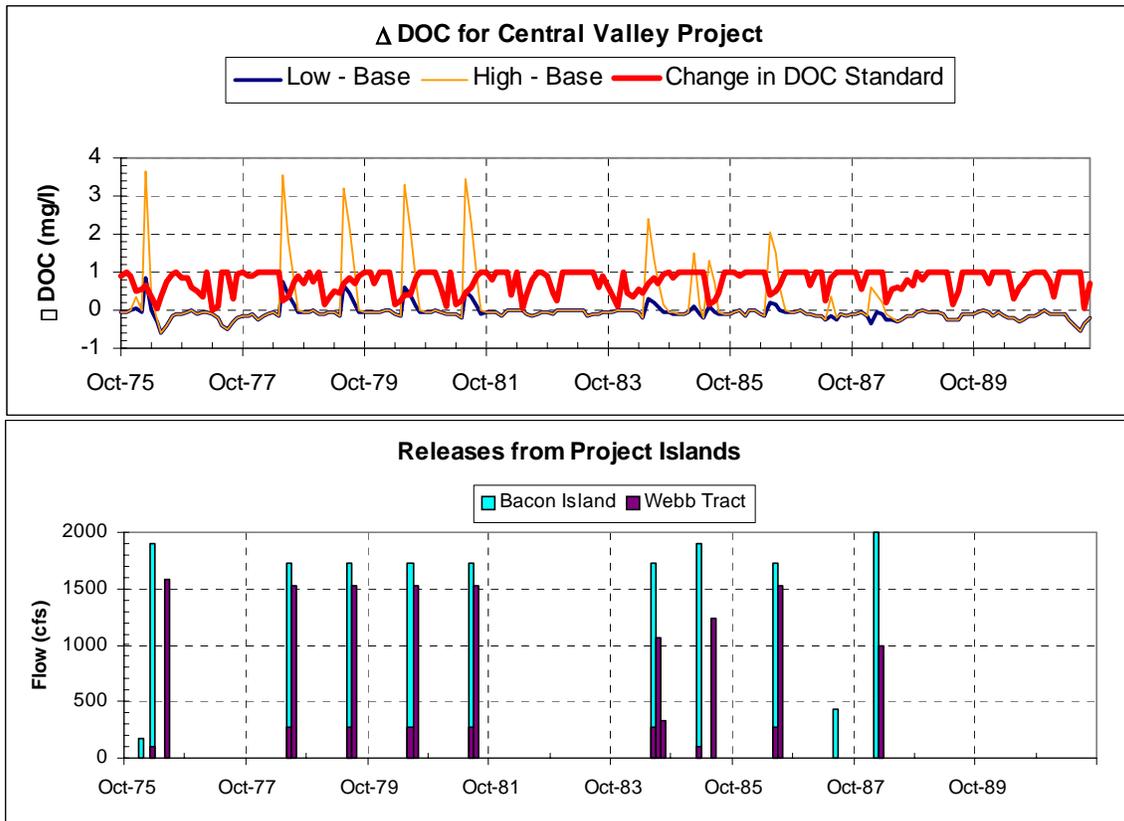


Figure 17

D. DOC at the Central Valley Project Intake

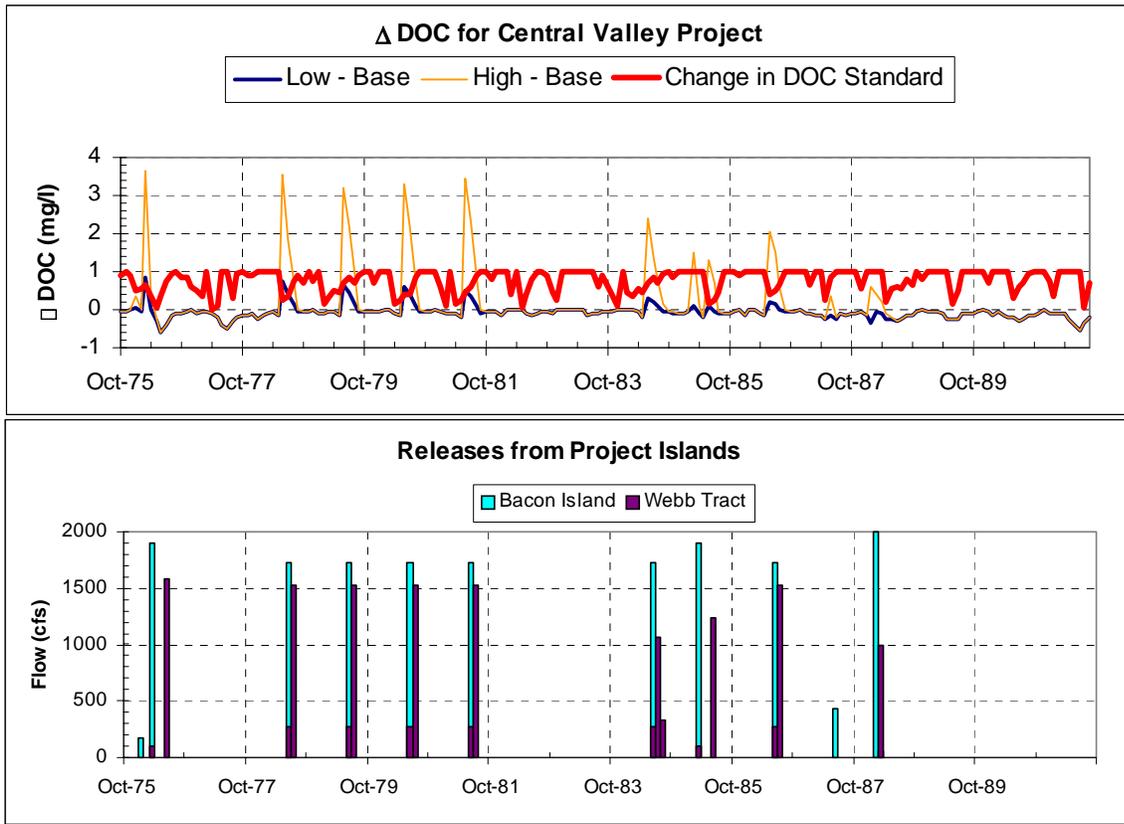


Figure 18

References:

Mierzwa, Michael. (August,2001). *Delta Wetlands Preliminary DSM2 Studies*. Memo to Tara Smith. California Department of Water Resources.

Suits, Bob. (Nov, 2001). *Boundary DOC and UVA for DSM2 Planning Studies*. Memo to Paul Hutton. California Department of Water Resources.

Pandey, Ganesh. (Nov, 2001) *Implementation of DOC Growth Module in DSM2-QUAL*. Memo to Parviz Nader. California Department of Water Resources.